

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: June 6, 1977

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Forwarded to:

Mr. David F. Hansen  
President  
Pennsylvania Gas and Water Company }  
39 Public Square  
Wilkes-Barre, Pennsylvania 18711

SAFETY RECOMMENDATION(S)

P-77-6 through 8

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At 1:36 a.m. e.s.t. on January 25, 1977, a low-order explosion and fire destroyed a house in a residential area near Williamsport, Pennsylvania; the occupant was not seriously injured by the explosion.

At 1:44 a.m., the fire chief of the Old Lycoming Township Volunteer Fire Department, which had responded to the fire, requested that the Pennsylvania Gas and Water Company (Penn Gas) be notified of the fire and explosion. Because the serviceman assigned to emergency calls lived in a town 20 miles away, and it would have taken him 45 minutes to reach the scene of the accident because of heavy snow, a local serviceman was dispatched from Williamsport at 1:55 a.m. At 2:01 a.m., firemen again notified the gas company of strong odors of gas at the accident site.

The local serviceman arrived at 2:10 a.m. in his personal vehicle without the necessary tools and equipment to deal effectively with the gas emergency. He determined that, since there was no gas service into the house that exploded, the gas main was leaking. He telephoned his dispatcher for a street crew at 2:15 a.m.; he also drove to the gas company shop for a combustible gas indicator (CGI) and other work tools.

At 2:39 a.m., a few minutes after the street crew arrived, another explosion demolished a large house 100 feet away. A resident of the house and a bystander were killed by the explosion; several persons, including 19 firemen, were injured. Automobiles, a firetruck, and many houses within a one-block radius were damaged severely.

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Penn Gas did not have a program in Williamsport for instructing the volunteer fire department on procedures to be followed during a gas emergency. The serviceman at the accident site did not establish a liaison with the fireman or offer any advice regarding checking other buildings for gas accumulations and evacuating of residents and bystanders from the area.

Penn Gas traced the leaking gas back to its 4-inch bare steel gas main, which was installed as a low-pressure main in 1963 and was later converted to high-pressure service. The pipe was excavated in an alley 60 feet away from one of the demolished houses. Gas was leaking at 10-psig pressure from a cracked weld in the pipe. There were no emergency valves on this section of the gas main, although one was shown on the gas main atlas. The pressure was lowered, a repair clamp was placed over the cracked weld, and the pressure was again raised to 10 psig.

Penn Gas did not immediately replace the failed pipe because officials did not want to interrupt gas service to the community during the extremely cold weather. The Pennsylvania Public Service Commission ordered Penn Gas to conduct continuous leak surveys on this system until the pipe could be replaced.

On March 29, 1977, the section of pipe containing the cracked weld was removed from service and replaced with new pipe. Visual and X-ray examination of the cracked weld indicated that the weld was substandard, had not been installed with a stringer bead, and contained inadequate penetration; this weld would not have passed the nondestructive weld test section of the American Petroleum Institute's Standard for Welding Pipe Lines and Related Facilities, Standard 1104, which was in effect at the time of construction of this gas main. Penn Gas did not use nondestructive testing procedures on the welds made by the contractor when this line was constructed.

In 1972, a 17-foot-deep sanitary sewer was installed parallel to, and within 5 feet of, the gas line. Sewer workmen chained the gas line to nearby power poles at several locations to prevent it from falling into the open-cut sewer trench. The sewer contractor backfilled the trench and covered the sewer line and gas main with large boulders up to 1 foot in diameter. The gas main had sunk from 30 inches of cover to 48 inches at the point of the failed weld. A gas company inspection program was not adequate to protect gas facilities from damage by the extensive sewer construction.

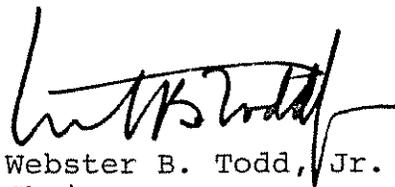
Therefore, the National Transportation Safety Board recommends that the Pennsylvania Gas and Water Company:

Excavate, on a random sample basis acceptable to the Pennsylvania Public Service Commission, the welds in the failed 4-inch gas main and nondestructively test them according to the American Petroleum Institute 1104 Welding Code to determine if there are more faulty welds on the pipeline. Replace or repair all welds which do not pass reinspection. (P-77-6) (Class I, Urgent Followup)

Instruct its personnel in inspection techniques and procedures and emphasize the potential hazards of undetected faulty welds and construction damage to operating pipelines. (P-77-7) (Class II, Priority Followup)

Reemphasize and instruct gas operations personnel on the importance of liaison with the fire department and establish with all fire departments, including volunteer fire departments, what the proper response should be to every type of gas emergency. (P-77-8) (Class II, Priority Followup)

TODD, Chairman, BAILEY, Vice Chairman, McADAMS, HOGUE, and HALEY, Members, concurred in the above recommendations.



By: Webster B. Todd, Jr.  
Chairman